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(54) Producing a fold line in a sheet material

(57) A sheet 1 of corrugated plastics material is arranged to be folded along a fold line 2. Extending from the fold line 2 are two cuts 3, 4 extending entirely through the sheet 1. Adjoining the cuts 3, 4 and extending there between is a further cut 5, arranged abaxially to the fold line 2 and parallel thereto. The combination of cuts 3, 4 and 5 define a tongue or tab 6 extending laterally of the fold line 2. The distance *a* by which the tongue or tab 6 extends is arranged to be one half of the depth *b* of the sheet material 1. The outer, parallel edge 7 of tongue or tab 6 interferes, when the sheet material is folded, with the opposed edge 8 of the sheet material from which the tongue or tab 6 was cut.

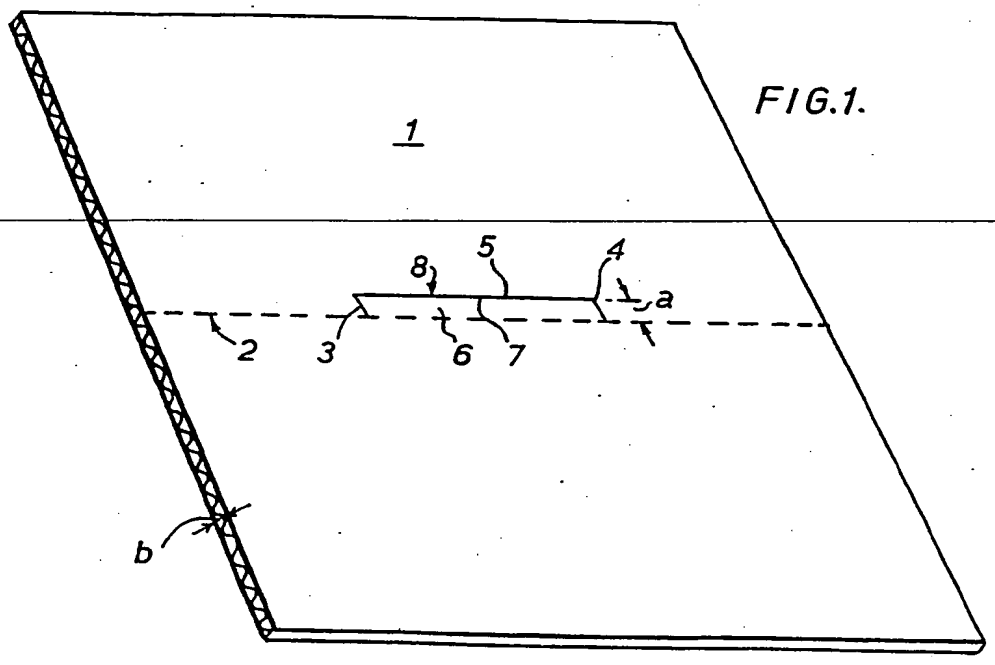

FIG.1.

GB 2 249 520 A

PRODUCING A FOLD LINE

IN A SHEET MATERIAL

This invention relates to a method of producing a fold line in a sheet material, sheet materials so folded and to articles produced therefrom and thereby.

The invention is applicable to any suitable sheet material but is particularly applicable to paper and board and to plastics sheet materials, In preferred embodiments the sheet material is a corrugated cardboard or corrugated plastics material. The invention will hereafter be discussed generally in relation to corrugated sheet materials but it is to be understood that the invention is not limited to such corrugated sheet material.

The easiest way of folding a corrugated sheet material is simply by producing a crease at the desired fold line. This can be unsatisfactory when a dead fold is required, i.e. one in which the folded material has little or no tendency to revert to its original unfolded shape.

To assist in the production of a dead fold it has been the practice to partially cut the sheet material, i.e. to cut it from one side but not so as to extend the cut through to the other side of the material. Such partial cuts do improve the dead fold qualitites of the material but the partial cut so formed has a tendency on folding to propagate axially, thereby weakening the fold and hence the integrity of an article formed from the folded material.

It is an object of the present invention to provide a method of producing a fold line in sheet material that alleviates the disadvantages of the known methods of producing fold lines in sheet materials.

It is also an object of the present invention to provide sheet materials having improved folded lines therein, improved folded sheet materials, and improved articles produced from and by folding sheet materials.

According to a first aspect of the present invention there is provided a method of producing a fold line in a sheet material which method comprises forming, adjacent the fold line defining the desired fold axis, a tab-like member which will interfere, when the sheet material is folded, with the material from which the tab-like member was produced.

The tab-like member may be formed by making a cut entirely through the sheet material.

The cut is located relative to the desired fold axis so that when the sheet material is folded along the desired fold axis, a tab-like member of the sheet material is formed adjacent the fold axis.

Preferably the cut is formed by one long cut parallel to and abaxial to the fold axis and two short cuts extending from said long cut to said fold axis, e.g. at right angles to said parallel cut. Preferably the said long cut is spaced from said fold axis by no more than a distance which is half that of the depth of the sheet material.

It is envisaged that the cuts in the sheet material can be at angles other than parallel or at right angles. For example it is envisaged that two cuts could be employed to form a generally triangular tongue or tab.

Preferably the sheet material is the fluted plastics sheet material commercially available under the Trade Mark "CORREX" ("CORREX" is a Registered Trade Mark).

According to a second aspect of the invention there is provided a sheet material comprising a fold line produced by a method according to the first aspect of the invention.

According to a third aspect of the invention there is provided an article of packaging manufactured from a sheet material in accordance with the second aspect of the invention.

The present invention also provides in further aspects sheet materials in which folds or fold lines are formed by methods as hereinbefore defined, and articles formed from such sheet materials.

An embodiment of the present invention will now be described, by way of example only by reference to the accompanying drawings, in which:

Fig. 1 is a view of a sheet of material in a planar state: and

Fig. 2 is a prespective view of the sheet of material of Fig. 1, in a folded state.

Referring to the drawings a sheet 1 of fluted plastics material (i.e. "CORREX") is arranged to be folded along a fold line 2. Extending from the fold line 2 are two cuts 3, 4 extending entirely through the sheet 1. Adjoining the cuts 3, 4 and extending therebetween is a further cut 5, arranged abaxially to the fold line 2 and parallel thereto. The combination of cuts 3, 4 and 5 define a tongue or tab 6 extending laterally of the fold line 2. The distance a by which the tongue or tab 6 extends is arranged to be one half of the depth b of the sheet material 1. The outer, parallel edge 7 of tongue or tab 6 interferes, when the sheet material is folded, with the opposed edge 8 of the sheet material from which the tongue or tab 6 was cut.

By providing the tongue or tab 6 the tendency of the cuts to propagate axially of the fold line is limited and, furthermore the interference of the tongue or tab 6 with the opposed edge of material acts to assist in maintaining the folded sheet material in a folded state.

The aperture formed by cutting out the tab leaves a space for insertion of a flap on either part of the sheet when an article is being formed from the sheet 1.

CLAIMS

1. A method of producing a fold line in a sheet material which method comprises forming, adjacent the fold line defining the desired fold axis, a tab-like member which will interfere, when the sheet material is folded, with the material from which the tab-like member was produced.

2. A method of producing a fold line in a sheet material according to claim 1, wherein said tab-like member is formed by making a cut entirely through said sheet material.

3. A method of producing a fold line according to claim 2, wherein said cut is located relative to the desired fold axis so that when the sheet material is folded along said desired fold axis, a tab-like member of said sheet material is formed adjacent the fold axis.

4. A method of producing a fold line according to claim 3, wherein said cut comprises one long cut parallel to and abaxial to the fold axis.

5. A method of producing a fold line in a sheet material according to claim 3, wherein said cut comprises one long cut abaxial to the fold axis and two short cuts extending from said long cut to said fold axis.

6. A method of producing a fold line in a sheet material according to claim 5, wherein said two short cuts extend from said long cut at right angles.

7. A method of producing a fold line in a sheet material according to claim 6, wherein said long cut is spaced from said fold axis by a distance which is no more than half that of the depth of the sheet material.

8. A method of producing a fold line in a sheet material according to any preceding claim, wherein the sheet material comprises corrugated plastics sheet material.

9. A method of producing a fold line in a sheet material, substantially as hereinbefore described with reference to the accompanying drawings.

10. A sheet material comprising a fold line produced by a method according to any preceding claim.

11. An article of packaging manufactured from a sheet material according to claim 10.

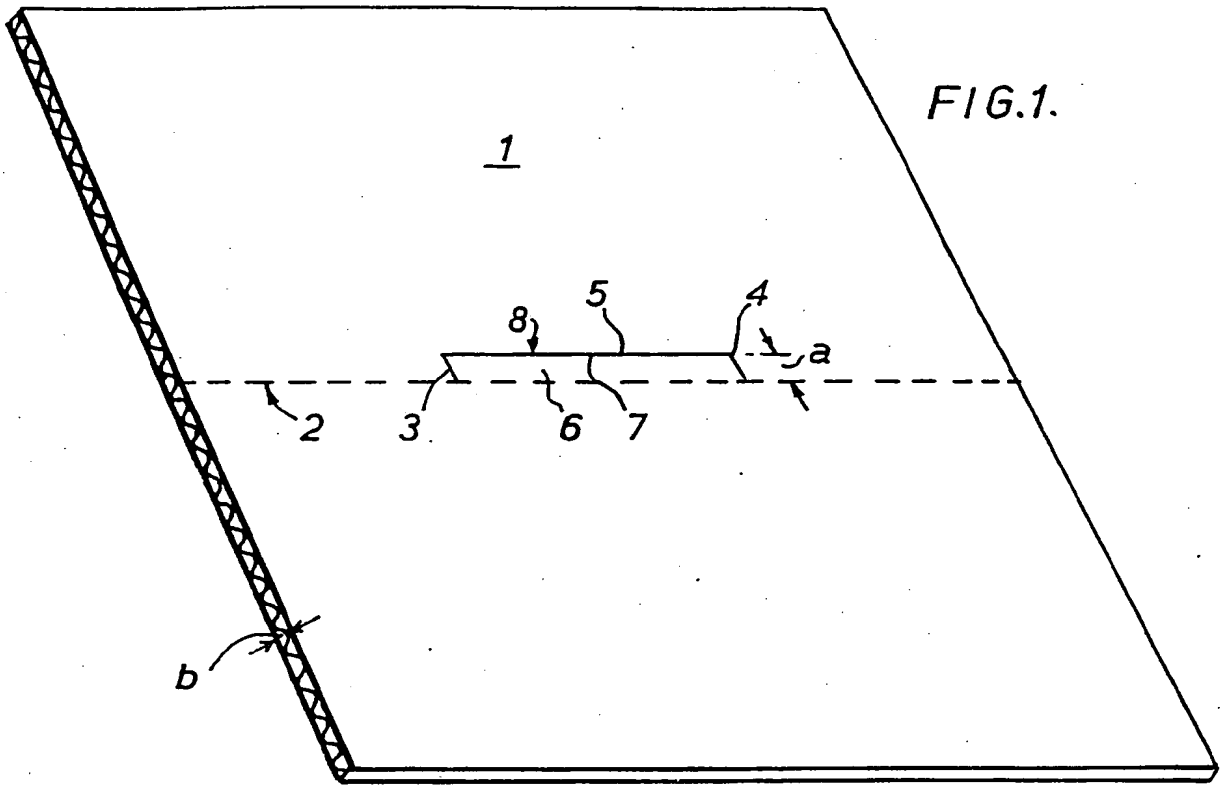

FIG.1.

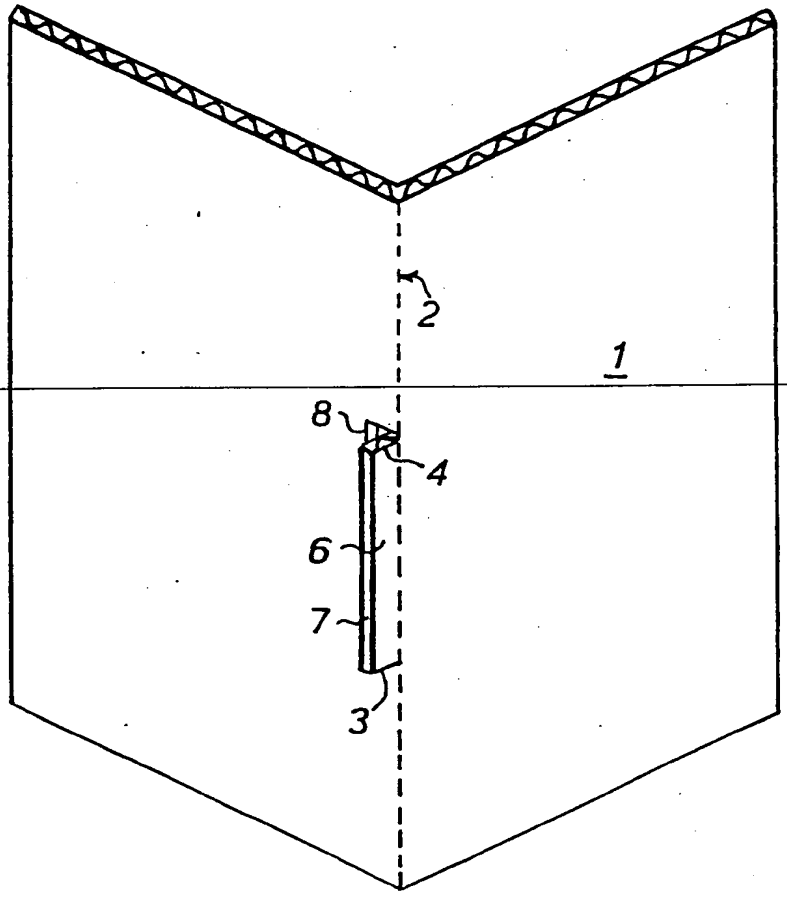

FIG.2.